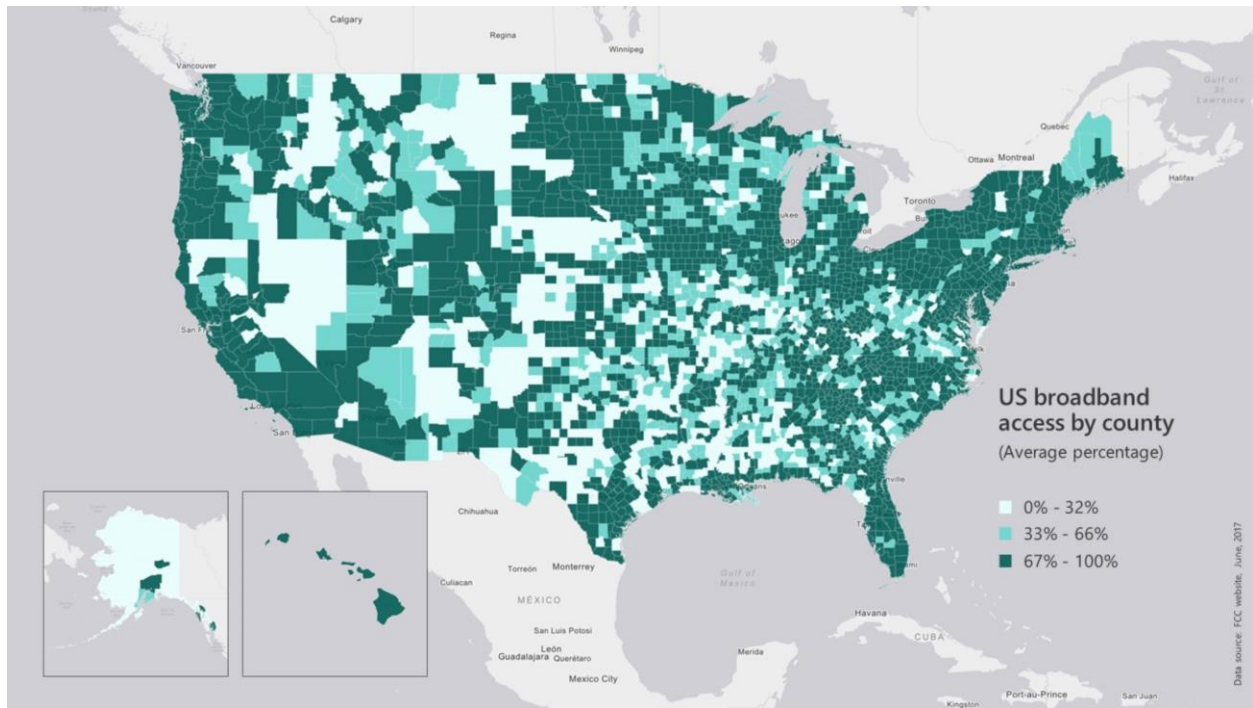


## A rural broadband strategy: connecting rural America to new opportunities



**By Brad Smith, President and Chief Legal Officer**

Today I will present Microsoft's thoughts on the rural broadband gap in the United States at a lunch sponsored by the Media Institute in Washington, D.C. It is an important opportunity to address a problem that is receiving a great deal of attention, but not many solutions. While we don't have all the answers, Microsoft has spent several years working on the issue and we will publish a white paper today with our best ideas for a new national rural broadband strategy. A summary of our white paper is [here](#).

Today's [event](#) takes place at the Willard Hotel, in the same building where 800 of America's most prominent leaders in science, business, art and government convened 101 years ago to honor Alexander Graham Bell's patent for the telephone and look to the future of long distance communications. That event, called "Voice Voyages," was sponsored by The National Geographic Society and featured the unprecedented public demonstration of coast-to-coast telephone capability that would connect every community large and small across the nation.

A century later, a new generation of connectivity issues are arising at a critical time. Broadband connectivity is no longer simply a luxury for streaming YouTube videos on a tablet (as enjoyable as that may be). It has become a critical connection to a better education and living. New cloud services are making broadband a necessity to start and grow a small business and take advantage of advances in agriculture, telemedicine and education. In short, broadband has become a vital part of 21<sup>st</sup> century infrastructure.

Yet today 34 million Americans still lack broadband internet access, which is defined by the Federal Communications Commission (FCC) as a 25 Mbps connection. Of these, 23.4 million live in rural parts of our country. People who live in these rural communities increasingly are unable to take advantage of the economic and educational opportunities enjoyed by their urban neighbors.

Yet despite this glaring disparity, real progress to close the rural broadband gap has plateaued in recent years. High costs, the absence of new and alternative technologies, and market and regulatory conditions have all hampered efforts to expand coverage. But this is changing, thanks to recent advancements in technology, newly adopted standards, business model innovations and a growing demand for broadened cloud services.

### **A new rural broadband strategy**

The time is right for the nation to set a clear and ambitious but achievable goal – to eliminate the rural broadband gap within the next five years by July 4, 2022. We believe the nation can bring broadband coverage to rural America in this timeframe, based on a new strategic approach that combines private sector capital investments focused on expanding broadband coverage through new technologies, coupled with targeted and affordable public-sector support.

Our call for a new strategy reflects in part our own experience as a company working around the world to make use of what's called TV White Spaces spectrum. This is unused spectrum in the UHF television bands. This powerful bandwidth is in the 600 MHz frequency range and enables wireless signals to travel over hills and through buildings and trees. It's why people could watch television programs in rural communities long before the advent of satellite television. Microsoft itself has considerable experience with this spectrum, having deployed 20 TV white spaces projects in 17 countries that have served 185,000 users.

In 2010 the FCC adopted rules enabling the use of TV white spaces in the United States. It has taken years of additional work to put in place the building blocks needed for the use of this spectrum to scale in an affordable way. We and others have worked to perfect the hardware and software technology, develop industry-wide standards and innovate our way to a practical business model. These advances have now reached a critical threshold, however, and together with increasing demand for cloud services, the market is poised to accelerate – if we take the right steps.

See the video: [Connecting rural communities with affordable broadband](#)

We've worked with the Boston Consulting Group on a directional study about the best way to meet the broadband coverage needs of rural America. BCG's findings lead to several important conclusions. First, the best approach for the nation is to rely on a mixture of technologies for rural communities. Specifically, TV white spaces will provide the best approach to reach the 80 percent of this underserved rural population that live in communities with a population density between two and 200 people per square mile. Satellite coverage should be used for areas with a population density of less than two people per square mile, and fixed wireless and limited fiber to the home should be used for communities with a density greater than 200 people per square mile.

One of the big benefits of this new approach is a dramatic reduction in the cost of bringing broadband rates to rural communities. By relying on this mixture of technologies, the total capital and two-year operating cost to eliminate the rural broadband gap falls into a range of \$8 to \$12 billion. This is roughly 80 percent less than the cost of using fiber cables alone, and it's over 50 percent cheaper than the cost of current fixed wireless technology like 4G.

The key now is to stimulate private sector investment and combine this with targeted and efficient public-sector support. Today I outline our thinking on how best to do this.

## Microsoft's new Rural Airband Initiative

At Microsoft, we're prepared to invest our own resources to help serve as a catalyst for broader market adoption of this new model. We're committed to three elements on a five-year basis:

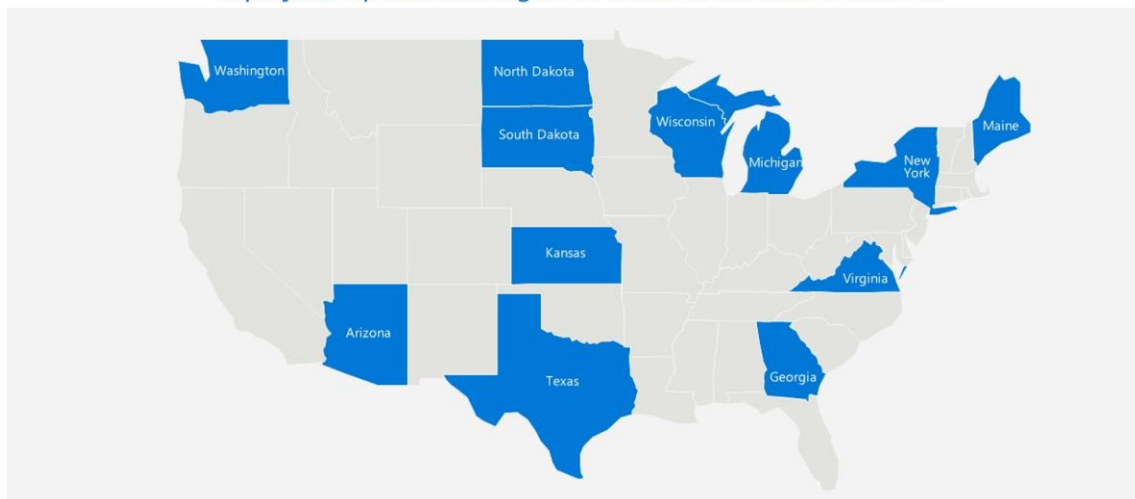
*First*, we'll pursue direct investments with partners. Microsoft's Rural Airband Initiative will invest in partnerships with telecommunications companies with the goal of bringing broadband connectivity to 2 million people in rural America by 2022. We and our partners will have at least 12 projects up and running in 12 states in the next 12 months. Our goal is not to enter the telecommunications business ourselves or even to profit directly from these projects. We will invest in the upfront capital projects needed to expand broadband coverage, seek a revenue share from operators to recoup our investment, and then use these revenue proceeds to invest in additional projects to expand coverage further. We're confident that this approach is good for the country and even for our business. After all, if 23 million additional customers can access the internet at broadband speeds, every tech company in America will benefit.

*Second*, we'll invest in digital skills training for people of all ages in these newly connected communities. Working through Microsoft Philanthropies, our Rural Airband Initiative will help train people on the latest technology so they can use this new connectivity to improve education, health care and agriculture, as well as transform their businesses. We announced a new and vital partnership with the National 4-H Council to do precisely this, building on the 4-H's capabilities and members across the country. We'll also create new opportunities for Microsoft's own employees to volunteer and get involved in projects, including for many, lending a hand in rural communities where they grew up.

*Third*, we'll stimulate investment by others through technology licensing: Our goal is to serve as a catalyst for market investments by others in order to reach additional rural communities. After all, even if we connect 2 million people through our own direct investments, that's just a stepping stone towards the larger goal of serving 23.4 million individuals. We therefore are launching a new technology program to share what we've learned with other companies. We'll also help stimulate investment through royalty-free access to at least 39 patents and sample source code related to technology we've developed to better enable broadband connectivity through TV white spaces spectrum in rural areas.

### Microsoft TV White Spaces Pilot Projects

12 projects up and running in 12 states in the next 12 months



## **A vital role for the public sector**

Although we believe the private sector can play the leading role in closing the rural broadband gap, the public sector also has a vital role to play. Three related governmental measures are needed:

*First*, the FCC needs to ensure the continued use of the spectrum needed for this mixed technology model. Specifically, it will be important for the FCC to ensure that three channels below 700 MHz are available for wireless use on an unlicensed basis in every market in the country, with additional TV white spaces available in smaller markets and rural areas. Among other things, this will help stimulate investment by hardware companies to produce the needed chips for new devices at a higher scale and lower cost.

*Second*, we believe that federal and state infrastructure investments should include targeted funds on a matching basis for the capital investments that will best expand coverage into rural areas that currently lack broadband access today. These funds should be made available for use by multiple technologies based on what is the most cost-effective in the region, including TV white spaces, fixed wireless and satellite usage. They should be awarded based on criteria that prioritizes either accelerating broadband coverage or incentivizing private sector investments in the communities where they are less likely to flow on their own.

*Third*, there is a need for improved data collection regarding rural broadband coverage. The FCC can help by accelerating its work to collect and report publicly on the state of broadband coverage in rural counties, thereby aiding policy makers and the private sector in making targeted investments.

## **Looking forward: the importance of capital spending to expand broadband coverage**

In urban America, we've thankfully become accustomed to ongoing capital investments to expand broadband capacity in areas that already have broadband coverage. But the time has come to extend this coverage to the rural areas that lack it entirely. We believe a new rural broadband strategy makes this feasible, and with Microsoft's Rural Airband Initiative we'll put our own resources and energy behind this effort. We can all innovate together, achieving what none of us can accomplish alone. And just as we look forward to sharing what we have learned, we look forward to applying over the next five years what we undoubtedly will learn from others.

As a country, we should not settle for an outcome that leaves behind more than 23 million of our rural neighbors. To the contrary, we can and should bring the benefits of broadband coverage to every corner of the nation.